



Santa Clara Fire Department

New and Existing Fire Alarm Systems



PURPOSE

The intent of this guideline is to facilitate the design, installation, and consistent review of fire alarm and monitoring systems that comply with all applicable codes and standards.

SCOPE

The Santa Clara Fire Department (SCFD) has established the following requirements for the submittal of all fire alarm, monitoring, and emergency warning systems being installed within its jurisdiction. These guidelines apply to all new installations and alterations to existing alarm systems. Plans not conforming to these minimum requirements will be returned as incomplete. All system installations shall comply with the current codes, standards, and ordinances as adopted by the State of California, and the various municipalities within SCFD's jurisdiction.

CODES & STANDARDS FOR SYSTEM REQUIREMENTS:

- Health & Safety Code Section 13145
- California Code of Regulations (CCR), Title 19
- CCR, Title 24, Part 2: 2007 California Building Code (CBC)
- CCR, Title 24, Part 3: 2007 California Electrical Code (CEC)
- CCR, Title 24, Part 4: 2007 California Mechanical Code (CMC)
- CCR, Title 24, Part 9: 2007 California Fire Code (CFC)
- National Fire Protection Association (NFPA) 72, 2002 edition, as amended in Chapter 45 of the 2007 CFC

SUBMITTAL REQUIREMENTS

1. GENERAL REQUIREMENTS

- A. Submit a completed SCFD Permit Application, which can be obtained at the Fire Marshal's Office which is located at 1675 Lincoln Street, Santa Clara or on the City of Santa Clara website at www.santaclaraca.gov.
 - B. Submit appropriate fees:
 - i. 20 devices or less: \$369 per system
 - ii. 21 to devices: \$651 per system
 - iii. 41 to 100 devices: \$1,034 per system
 - iv. 101 or more devices: \$1,265 per system
 - C. Submit three sets of legible, scaled plans with ONE set of current and complete technical data sheets. These plans shall contain the following information and items:
 - i. Scope of work for the project.
 - ii. Complete address of the project, including the tract and lot numbers.
 - iii. Name and phone number of the project coordinator, facility owner, and system designer. Evidence of the designer's qualifications is to be provided upon request by the SCFD.
- NFPA 72: 4.3.2. A C-10 contractor can also design the fire alarm system, as long as that contractor performs the entire installation without subcontracting any portion of the work.

- iv. A copy of the installing contractor's identification card or provide the contractor's registration number, license class, and expiration date.
- v. With the exception of some security system information and mechanical calculations, the plans shall contain only fire alarm system information.
- vi. SCFD fire alarm notes (See Page #). Insure the information is provided for Note #15.

2. DATA SHEETS

- A. Highlight one set of data sheets (style, type, model, amps, volts, etc.) for all fire alarm components. Include this information for combination fire/security alarms.
- B. Provide ONE copy of current California State Fire Marshal (CSFM) listing sheets for all devices and equipment to be installed. CFC 907.1.2

3. SPECIFIC PLAN REQUIREMENTS

- A. Provide a floor plan showing the location of all initiating and signaling devices, control and trouble signaling equipment, annunciators, power connectors, and all egress control devices.
- B. Identify all zones and notifying circuits. Each address shall be placed adjacent to each device. CFC 907.1.2, NFPA 72: 4.4.6
- C. Provide the ceiling configuration, surface, and height. NFPA 72: 5.7.3.1.2
- D. Identify zone assignments. This is also required for addressable systems. Any existing suppression system or future suppression system shall be on a separate zone. All ancillary systems shall be on a separate zone and shall be supervised by the main fire alarm control panel (FACP), which shall initiate a general alarm. CFC 907.1.1, 907.9.
- E. Provide a matrix of the manufacturer, model numbers, and listing information for all equipment, devices, and materials. Include the CSFM listing numbers and the quantities of each component. CFC 907.1.1
- F. In matrix form, provide the sequence of operations following the actuation of any fire and life safety device. This includes all special egress control systems.
- G. If duct detectors are required by code, provide evidence that the detectors are listed for the normal air velocities required by the HVAC system.
- H. If duct detectors are part of the alarm system, their activation shall initiate a shut down of all applicable HVAC system/s and a supervisory alarm signal to the central station. Activation of the duct detector alone shall not put the alarm system into general alarm. CFC 907.12
- I. Provide automatic fire detection in all rooms or areas that contain central control equipment (e.g., FACP, transponders, power expanders etc.). NFPA 72: 4.4.5
- J. A supervised remote annunciator(s) is required if the FACP is not located in an area that the fire department would normally respond to. The annunciator shall be placed in an area that the fire department would respond to, typically the front lobby. CFC 907.9.1
- K. In strip malls or multi-tenant suites with individual exterior exits, the remote annunciator shall be located in the lowest number or lettered suite, i.e. "A" or "1." If each suite has a different address, the suite with the lowest street address shall contain the remote annunciator. 2007 CFC 907.9.1
- L. Specify the fire alarm device mounting heights and locations. 2002 NFPA 72
- M. Local notification shall include both audible and visual devices. Visual notification within stairwells shall be similar to the spacing requirements for corridors. A device (15 cd) shall be located on the 1st and top floors and every 100' linear (vertical) feet in between. Notification devices in the stairwells shall activate upon an alarm on any floor. CFC 907

4. SECONDARY POWER SUPPLY

- A. Voltage drop calculations shall be on the plans. The voltage drop may not exceed 10%. For fire alarm tenant improvements, voltage drop calculations shall be provided for the most demanding circuit(s) in the area of the work.

- B. Standby battery calculations shall be on the plans. These shall include both standby and alarm conditions. Calculations are to be performed for 100% of the load. Any security device load shall be included. NFPA 72 4.4.1.5.3 and CFC 907.1.1
- C. When auxiliary power and/or control panels are being added to an existing system, detailed “point to point” connection between this equipment and the main control panel, including relays and modules, shall be on the plans. Only circuit zones affected by this work need to be identified on the drawings.

5. AUXILIARY EQUIPMENT CONNECTIONS

- A. All fixed fire protection systems (wet agent, gaseous suppression, etc.) and duct detectors shall be interconnected to required or optional fire alarm systems. CFC 907.3.1.10.5 and 904.3.5
- B. The systems described above will not be required to be interconnected to fire sprinkler-monitoring systems. CFC 904.3.5
- C. If special egress control systems are located in the building, the alarm contractor shall provide a copy of the approved architectural plans that demonstrate compliance with all provisions of CBC 1008.1.8.6
- D. All egress control devices shall be indicated on the fire alarm plans. The code may impose additional requirements such as smoke detection throughout. CBC 1008.18.6 and NFPA 72 6.15.7

6. REQUIREMENTS FOR STROBES IN A TENANT IMPROVEMENT

- A. When tenant improvements create a new or altered common use area within an existing building, the area of remodel shall be provided with strobes installed in accordance with NFPA 72 and CFC 907.10.1.1
- B. If an existing fire alarm system is extended or modified by the addition of more than two devices or the addition of a new circuit, and that portion of the fire alarm system serves an area of common use, then the affected area (existing or new) shall also be provided with strobes.
- C. In all cases, priority shall be given to the product listing criteria in determining the extent of strobe placement and coverage.

Note: When the scope of a fire alarm system alteration is significant, SCFD may require the entire system to be upgraded with the addition of visual warning devices. CFC 907.3.1.10.2

7. MISCELLANEOUS

- A. When a fire alarm system (voluntary or mandated) is installed in residential occupancies, smoke detectors within sleeping areas, corridors, or areas adjacent to sleeping areas shall be installed in accordance with the CBC. If someone other than the owner will perform this work, this shall be stated on the plan.
- B. All emergency warning systems for hazardous materials shall have visual notification appliances that are blue in color. Audible devices shall be of a different tone and pattern than the fire alarm systems. An approved UL central station, remote station, or a proprietary station approved by the SCFD shall supervise these emergency alarm systems. CFC 2704.2.2.5 and 908
- C. Manual fire alarm pull station covers shall be evaluated on a case-by-case basis and shall be subject to the approval of SCFD. If the installation is allowed the station cover shall not be equipped with a sounding device. CFC 907.4.6

8. SPECIAL REQUIREMENTS FOR NEW HIGH RISE FIRE SYSTEMS

- A. Fire alarm systems installed in new high-rise buildings shall comply with CFC 907.2.12 and 907.9.3 as amended.

9. WATER-FLOW/MONITORING SYSTEMS

- A. A single audible device is required at a normally attended location. For monitoring systems in strip malls, or multi-tenant suites with individual exterior entries the audible device shall be installed in the lowest number or lettered suite, i.e. "A" or "1." If each suite has a different address, the suite with the lowest street address shall contain the audible device. CFC 903.4.1
- B. The Fire Alarm Control Panel (FACP) shall be placed in an area that the fire department would respond to, typically the front lobby or within an electrical, mechanical, service, or riser room, which can be accessed from the exterior of the building and is identified by a sign indicating "Fire Alarm Control Panel." In strip malls or multi-tenant suites with individual exterior exits, the FACP shall be located in the lowest number or lettered suite, i.e. "A" or "1." If each suite has a different address, the suite with the lowest street address shall contain the FACP. CFC 907.1.1 (3)
- C. An annunciator panel shall be required if the FACP does not provide specific alarm conditions on site. The annunciator location shall comply with the above-mentioned requirements for the FACP. CFC 907.9.1

SCHEDULING INSPECTIONS

- A. Inspection appointments can only be made by the installing contractor.
- B. It is the responsibility of the installing contractor or a representative to be on the job site during the inspection with a set of approved plans. Failure to do so will result in the cancellation of the inspection and an assessment of a re-inspection fee of \$180.00 will be assessed.
- C. Call (408) 615-4970 at least one business day prior to the desired date of the inspection. Inspections are assigned on a first come first served basis. The inspection request line is open Monday through Friday between 8:00 a.m. and 5:00 p.m.

SMART PERMIT INFORMATION SYSTEM

The City of Santa Clara offers you the opportunity to check the status of you fire permits on-line. To access the Smart Permit Information System please log onto the system at:

http://santaclaraca.gov/community/smt_permit_information.html

You can search the system using your Case Number (Permit number; fir2008-00001), Project Name, Applicant Name or the address of the project.

SANTA CLARA FIRE DEPARTMENT - FIRE ALARM NOTES

Complete and place the following notes, verbatim, on the plan:

1. The applicable codes and standards are the 2007 California Fire Code (CFC), 2007 California Building Code (CBC) and 2002 NFPA 72.
2. Upon completion, a copy of "as built" drawings and written operation and maintenance Instructions shall be provided to the owner/occupant.
3. A 24hour emergency response phone number shall be permanently posted adjacent to the control panel.
4. The installing contractor shall provide an SCFD Record of Completion to the inspector and to the business owner following completion of alarm testing as witnessed by SCFD. CFC 907.18
5. Automatic fire sprinkler water flow alarms, supervisory initiating devices, and their circuits, shall be designed and installed so that they cannot be readily tampered with, opened, or removed without initiating a signal.
6. Through penetration fire stopping for all firewalls, floor/ceilings, and assemblies shall have an "F" or "T" rating per the CBC and standards. Installation of fire stopping shall comply with approved methods.
7. The voltage drop shall not exceed 10% using either the engineered "point to point" or Ohm's Law formulas. This will be verified by the SCFD during alarm testing as per local ordinance.
8. All fire control panels shall be interconnected with all other fire alarm control panels located within the facility. NFPA 72: 68.2.1
- D. All audible alarm notification signals shall be three-pulse temporal pattern. CFC 907.10.2.1
- E. Audible alarm sound level shall be the minimum specified by CFC 907.10.2.
- F. When more than two visual notification appliances are located within the same room or area, they shall be synchronized. NFPA 72: 7.5.4.1.2
- G. Any egress control devices shall be indicated on the approved set of plans.
- H. The SCFD may require three inspections: device testing, battery test, and final inspection.
- I. Fire sprinkler monitoring systems only require a final inspection.
- J. All fire sprinkler systems shall be monitored except those noted in CFC 903.4
- K. The following must be completed:
 - a. The Central Station Monitoring Facility (CSMF) is: _____
 - b. The CSMF's address is: _____
 - c. The CSMF's phone number is: _____
 - d. Per the CBC, the occupancy classification is _____. The square footage of the building is _____ and the square footage of the affected area is _____.